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# farmers & ranchers

... soil surveys  
can help you



Soil Conservation Service  
U.S. Department of Agriculture





## FARMERS AND RANCHERS

As farmer or rancher you don't have time or capital to spend on elaborate agricultural research and experiments or on mapping and studying soils. But you are interested in the results of such studies if they can help you to manage more profitably.

The Soil Conservation Service publishes soil surveys of counties throughout the United States. Each soil survey contains detailed maps and descriptions of soils in the area surveyed. This pamphlet explains how the soil survey of your area can contribute to the management of your farm or ranch.

### How Soil Surveys Can Help Farmers

To stay in business farmers have to evaluate important developments in agricultural management. A soil survey can play a major part in this aspect of managing a farm.

*Management practices.*—Farm production depends largely on fitting soil management practices to the soil properties as accurately as possible. It is the right combination of a number of practices that gets optimum results. Researchers try various combinations of

fertilizers, tillage methods, water management, and conservation measures. Combinations that produce the greatest yields at the least cost on soils at experiment stations can be expected



Farmers can use soil surveys to plan conservation of their land. Stripcropping is a good conservation practice.



A soil survey can help ranchers determine the potential forage production of soils.



Farmers and ranchers can use soil surveys to select areas suitable for manmade ponds, wildlife habitat, and recreation development.



Farmers can use soil surveys to evaluate the probable success of new or special crops on their soils.



Soil characteristics that affect the growth of trees for cash crops, windbreaks, or beautification can be determined through use of a soil survey.



Soil surveys can help ranchers plan the layout of stock ponds, fences, and other range conservation measures.





to give equally good results on similar soils elsewhere. Soil descriptions presented in the soil survey of your area can help you evaluate prospective changes in management of your soils. New practices also are constantly on trial at state and other agricultural experiment stations. By comparing soils at such stations with those described in the soil survey of your area, you can estimate the likely success of new practices on your farm.

*Special crops.*—You may want to know if new or special crops will work for you. The soil survey of your area describes soil properties that affect crop growth and provides information that could save you costly experiments in determining the best way to manage your land for unfamiliar crops.

*Crop yields.*—Estimated yields of major crops under a high level of management are included in published soil surveys. The estimated yields can help you calculate approximately what returns to expect on your soils and determine whether a high level of management would increase yields enough to pay the extra cost.

*Conservation plan.*—A soil survey can help you determine how intensively you can use your soils without damage. It also helps in determining what conservation measures are needed to control erosion and maintain or increase the productivity of your farm.

*Reclaiming land.*—Some severely eroded soils respond readily to soil treatments, such as fertilizer, lime, and green manure, but other soils respond very poorly. A soil survey can help you decide whether added treatment to reclaim soils is likely to succeed.

*Waste disposal.*—Feedlots, poultry and broiler plants, and dairy farms dispose of manure and other wastes into soils. A soil survey helps in determining how much waste the soils can absorb and in what form.

*Recreation.*—A soil survey can help in selecting areas suitable for manmade ponds. It also can help in planning development of land for fee fishing, hunting, camping, and other recreation facilities used to supplement income.

## How Soil Surveys Can Help Ranchers

As a rancher, you want the greatest amount of high-quality forage from your range. Because forage yields depend in large part on soil properties, detailed knowledge of the soils on your ranch can help you manage your range more effectively.

*Range potential.*—A soil survey provides detailed soil descriptions that can help you relate the kinds of soil on your ranch to the distinctive kind and amount of vegetation each soil can support. Soil texture, depth, wetness, available water, slope, and topographic position are among the important soil properties that affect range potential. Deep loamy soils on bottom lands may produce the most desirable range plants. On uplands where rainfall is moderate, medium-textured soils that take in water readily may produce desirable plants if grazing is controlled. In some dry areas sandy soils are more productive than clayey soils. Grouping the soils on your range according to their potential productivity helps you plan the kind of management needed to increase forage yields.

*Range management.*—A soil survey can help you estimate the likely benefits of management practices. For example, the soil in an area of brush or mesquite may have such low potential productivity that the cost of chaining or chemical removal may not be worth the ultimate yield in forage. On the other hand, there may be rocky areas or hillsides where the soils are capable of producing more forage if properly managed. A soil survey can help you determine such natural differences in productivity.

*Grazing management.*—If range is overgrazed, desirable plants decrease and less desirable plants may take over the site. A soil survey can help you identify soils that are producing at less than their potential. Each soil survey names the main species of desirable and undesirable range plants that grow on the soils and provides estimates of forage yields than can be expected under favorable and unfavorable conditions.

*Pasture, hay, and silage.*—You may need to grow more winter feed or establish more pasture. A soil survey rates soil suitability for hay and pasture plants so that you can determine which areas will be most productive for this use.

*Wildlife and recreation.*—To supplement income, many ranchers use their land for fee hunting or other kinds of recreation. A soil survey provides information that can help you manage your land for wildlife habitat or identify areas suitable for recreation development.

*Conservation plan.*—A soil survey can help you plan conservation management of your range. Soil maps and soil descriptions help you identify problem areas, select suitable areas for stock ponds, and establish schedules for grazing and proper use of the soils on your range.

## **What Soil Data Are Available?**

Soil surveys contain detailed maps and descriptions of soils and they provide interpretations of soil properties for farming and ranching where such land use is practiced. Among the soil properties that affect use of soils for farming and ranching are the content of sand, silt, and clay, acidity and alkalinity, flood hazard, depth to water table, natural drainage, erodibility, organic-matter content, and fertility. These and many other properties described in soil surveys provide basic information for managing soils on a farm or ranch.

To determine whether a soil survey of your area is available, call the local office of the Soil Conservation Service. The soil conservationist or soil scientist will welcome an opportunity to discuss conservation management of your soils with you.

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